S-SARE Young Scholar Internship: Extending the Market Season with High Tunnel Technology for Organic Fruit Production; an Internship and Apprenticeship for Sustainable Horticulture.

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Introduction

This S-SARE project aims to develop environmentally and economically sustainable organic berry production systems combining high tunnel (HT) with field (FD) production providing for season extension and expanded production.

The young scholar managed an experiment on the effects of shade on primocane blackberry growth, flowering, and yield in field conditions. Shade was used as a management tool to delay flowering and to improve fruit quality in a high temperature and high solar-radiation environment.

Internship Purpose and Objectives

The goal of the project was to provide an experiential environment for learning about sustainable organic crop management, research operations, experimentation, and communicating information

Internship Objectives

1. To participate in a research project on sustainable organic management of primocane blackberries and raspberries for extended autumn production, and floricane blackberries and blueberries for advanced spring production in high tunnel and field production systems, including data collection and sampling, data entry, and data assessments
2. To assist in the routine management of organic blackberries, raspberries, and blueberries, including management of water, competitive vegetation, temperature, nutrition, irrigation, and pests
3. To conduct a research project on the timing and intensity of shade on the potential for delayed flowering and fruiting of primocane blackberries
4. To participate in planning and conducting a workshop on sustainable high tunnel fruit production
5. To communicate to diverse audiences of stake holders and client groups about summer research experiences

Process

1. Participating in a research project on organic high tunnel berries.
   - Berry harvesting, weighing, sorting, and brix measurement
   - Collecting time data for horticultural activities
   - Data entry
   - Integrated pest management (IPM)
2. Assisting in the routine management of organic berries.
   - Irrigation
   - Weeding and laying landscape fabric
   - Thinning, pruning, and tipping canes
   - Training canes to trellis system
   - Fertilizing berries and amending soil pH
3. Conducting a research project on the timing and intensity of shade on the potential for delayed flowering and fruiting of primocane blackberries;
   - Developing a plot map and marking treatment plots
   - Transplanting, thinning, pruning, and tipping canes
   - Building shade structures and installing shade cloth
   - Applying two shade treatments (30% and 50% shade cloth) at three different dates (June 15, July 1, and July 15)
   - Marking canes for data collection
   - Managing competitive vegetation
   - Collecting data on soil moisture, photosynthetic active radiation (PAR), leaf chlorophyll content, and photosynthetic rate within plots
   - Collecting data on selected canes, including cane diameter, shoot length, number of nodes, number of lateral branches, number of flower clusters, and stage of flower development
   - Harvesting berries and measuring berry weight and soluble solids
4. Participating in organizing a high tunnel workshop
   - Building a resource manual
   - Assisting with registration, materials, and set-up
5. Communicating to diverse audiences about summer experiences
   - Presenting summer research experience at departmental seminar
   - Developing a poster for S-SARE Administrative Council Meeting

Internship Observations & Lessons Learned

- Gained experience in horticulture research
- Learned about research plot design, replication, and randomization
- Developed knowledge about organic production management
- Learned about the horticultural management of blackberries, raspberries, and blueberries
- Experienced how to sustainably manage organically produced crops in high tunnels
- Developed welding and construction skills
- Observed the organic pest management of berries
- Learned how pruning and tipping strategies affect cane development and fruit formation in primocane blackberries and raspberries

Ginsburg prunes Prime Ark 45 blackberries in her shade study funded by the S-SARE Young Scholar Enhancement program

Young scholar Kat Ginsburg harvests Natchez blackberries from the S-SARE funded project, Extending the Market Season with High Tunnel Technology for Organic Fruit Production.

Summary

High tunnels are a potential sustainable means of extending the cropping season and protecting crops from environmental damage and pests. High tunnels are a compliment to field production systems and contribute to economic sustainability. A problem of excessive heat and solar radiation limits primocane blackberry production in the southern region and shade may provide opportunities for introducing and expanding the crop in this region. The S-SARE young scholar internship provided an undergraduate student with an opportunity for the application of classroom learning and the development of hands-on skills in preparation for a career in sustainable agriculture.

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